

Claims

[c1] What is claimed is:

1. A method of routing data between IP-based telephone extensions in a telecommunications network, the telecommunications network comprising:
 - a first Internet Protocol (IP) sharing device for sharing connection to a first IP address;
 - a first remote telephone group containing a first set of IP-based telephones, the first remote telephone group being connected to the Internet through the first IP sharing device, and each of the IP-based telephones in the first remote telephone groups being assigned a unique identifier;
 - a second IP sharing device for sharing connection to a second IP address;
 - a second remote telephone group containing a second set of IP-based telephones, the second remote telephone group being connected to the Internet through the second IP sharing device, and each of the IP-based telephones in the second remote telephone groups being assigned a unique identifier;
 - a main host connected to the Internet for controlling data traffic over the Internet between the first remote

telephone group and the second remote telephone group; and
a remote host connected to the Internet through the first IP sharing device for linking the first remote telephone group to the second remote telephone group and main host;
the method comprising:
the remote host connecting with and logging into the main host;
generating data packets with a source IP-based telephone in the first remote telephone group for contacting a destination IP-based telephone in the second remote telephone group;
transmitting the data packets to the remote host;
the remote host transmitting the data packets to the main host; and
the main host transmitting the data packets to the destination IP-based telephone in the second remote telephone group for establishing communication between the source IP-based telephone in the first remote telephone group and the destination IP-based telephone in the second remote telephone group.

- [c2] 2. The method of claim 1 further comprising:
generating data packets with a source IP-based telephone in the second remote telephone group for con-

tacting a destination IP-based telephone in the first remote telephone group;
transmitting the data packets to the main host;
the main host transmitting the data packets to the remote host; and
the remote host transmitting the data packets to the destination IP-based telephone in the first remote telephone group for establishing communication between the source IP-based telephone in the second remote telephone group and the destination IP-based telephone in the first remote telephone group.

- [c3] 3.The method of claim 1 further comprising:
generating data packets with a source IP-based telephone in the first remote telephone group for contacting a destination IP-based telephone in the first remote telephone group;
the remote host contacting the main host to request connection of the source IP-based telephone and the destination IP-based telephone;
the main host contacting the remote host to grant connection of the source IP-based telephone and the destination IP-based telephone;
the remote host establishing a direct connection between the source IP-based telephone and the destination IP-based telephone; and

the source IP-based telephone communicating with the destination IP-based telephone.

- [c4] 4.The method of claim 3 wherein the source IP-based telephone communicates with the destination IP-based telephone locally without connecting to the Internet.
- [c5] 5.The method of claim 1 further comprising:
 - terminating connection between the remote host and the main host;
 - generating data packets with a source IP-based telephone in the first remote telephone group for contacting a destination IP-based telephone in the first remote telephone group;
 - the remote host establishing a direct connection between the source IP-based telephone and the destination IP-based telephone; and
 - the source IP-based telephone communicating with the destination IP-based telephone.
- [c6] 6.The method of claim 5 wherein the source IP-based telephone communicates with the destination IP-based telephone locally without connecting to the Internet.
- [c7] 7.The method of claim 1 wherein the remote host performs bandwidth control functions for the first remote telephone group.

- [c8] 8.The method of claim 1 wherein the remote host sends duplicate copies of system information received from the main host to each of the IP-based telephones in the first remote telephone group.
- [c9] 9.The method of claim 1 wherein the first and second IP addresses are dynamic IP addresses.
- [c10] 10.A method of routing data between IP-based telephone extensions in a telecommunications network, the telecommunications network comprising:
 - a first Internet Protocol (IP) sharing device for sharing connection to a first IP address;
 - a first remote telephone group containing a first set of IP-based telephones, the first remote telephone group being connected to the Internet through the first IP sharing device, and each of the IP-based telephones in the first remote telephone groups being assigned a unique identifier;
 - a second IP sharing device for sharing connection to a second IP address;
 - a second remote telephone group containing a second set of IP-based telephones, the second remote telephone group being connected to the Internet through the second IP sharing device, and each of the IP-based telephones in the second remote telephone groups being

assigned a unique identifier;

a main host connected to the Internet for controlling data traffic over the Internet between the first remote telephone group and the second remote telephone group;

a first remote host connected to the Internet through the first IP sharing device for linking the first remote telephone group to the second remote telephone group and main host; and

a second remote host connected to the Internet through the second IP sharing device for linking the second remote telephone group to the first remote telephone group and main host;

the method comprising:

the first and second remote hosts connecting with and logging into the main host;

generating data packets with a source IP-based telephone in the first remote telephone group for contacting a destination IP-based telephone in the second remote telephone group;

transmitting the data packets to the first remote host;

the first remote host transmitting the data packets to the second remote host; and

the second remote host transmitting the data packets to the destination IP-based telephone in the second remote telephone group for establishing communication be-

tween the source IP-based telephone in the first remote telephone group and the destination IP-based telephone in the second remote telephone group.

- [c11] 11. The method of claim 10 further comprising:
- generating data packets with a source IP-based telephone in the second remote telephone group for contacting a destination IP-based telephone in the first remote telephone group;
- transmitting the data packets to the second remote host; the second remote host transmitting the data packets to the first remote host; and
- the first remote host transmitting the data packets to the destination IP-based telephone in the first remote telephone group for establishing communication between the source IP-based telephone in the second remote telephone group and the destination IP-based telephone in the first remote telephone group.
- [c12] 12. The method of claim 10 further comprising:
- generating data packets with a source IP-based telephone in the first remote telephone group for contacting a destination IP-based telephone in the first remote telephone group;
- the first remote host contacting the main host to request connection of the source IP-based telephone and the destination IP-based telephone;

the main host contacting the first remote host to grant connection of the source IP-based telephone and the destination IP-based telephone;
the first remote host establishing a direct connection between the source IP-based telephone and the destination IP-based telephone; and
the source IP-based telephone communicating with the destination IP-based telephone.

- [c13] 13. The method of claim 12 wherein the source IP-based telephone communicates with the destination IP-based telephone locally without connecting to the Internet.
- [c14] 14. The method of claim 10 further comprising:
terminating connection between the first remote host and the main host;
generating data packets with a source IP-based telephone in the first remote telephone group for contacting a destination IP-based telephone in the first remote telephone group;
the first remote host establishing a direct connection between the source IP-based telephone and the destination IP-based telephone; and
the source IP-based telephone communicating with the destination IP-based telephone.
- [c15] 15. The method of claim 14 wherein the source IP-based

telephone communicates with the destination IP-based telephone locally without connecting to the Internet.

- [c16] 16.The method of claim 10 wherein the first and second remote hosts perform bandwidth control functions for the first and second remote telephone groups, respectively.
- [c17] 17.The method of claim 10 wherein the first and second remote hosts send duplicate copies of system information received from the main host to each of the IP-based telephones in the first and second remote telephone groups, respectively.
- [c18] 18.The method of claim 10 wherein the first and second IP addresses are dynamic IP addresses.